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GASTRO-ENTEROSTOMY AND PYLORECTOMY.

BY

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MISSOURI MEDICAL COLLEGE, CONSULTING SURGEON TO THE ST.
LOUIS CITY HOSPITAL, SURGEON TO THE ST. LOUIS
POLYCLINIC AND HOSPITAL, ETC.



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IN the beginning of October, 1889, I took charge of the case of O'N., a mechanic, aged thirty years, whom I had seen in consultation about five weeks previous.

History.—Of healthy parentage, the patient had enjoyed fair health until two years ago, when, he claimed, he contracted syphilis, and had a primary sore on the penis, which, two months later, was followed by mucous patches in the mouth and throat. There were no other demonstrable lesions. He was treated with mercury and potassium iodide. In the spring of 1889 the first symptoms of stomach trouble appeared. Patient would vomit, without much nausea, without any pain, and at irregular intervals, large quantities of fluid. Vomiting was usually followed by shorter or longer periods of comparative comfort. Treatment yielded no results to speak of, and on the recommendation of his medical attendant the patient tried a change of climate. Gradually losing in weight, he dragged on through the summer, and returned to his home in the latter part of September. It was then that I saw him in consultation and diagnosed an obstructive trouble



at or about the pylorus. Toward the end of October I took sole charge of him, and found the following conditions: Height of patient, 6 feet 2 inches; weight, 118 pounds; emaciated to an extreme degree, the hands presenting the wrinkled, brawny appearance of starvation. Physical examination revealed nothing abnormal in the lungs or heart; no disturbance referable to the urinary apparatus; nervous system fairly normal; intellect bright and clear; abdomen flat, even sunken at the lower part; the epigastrium was prominent. The contour of the stomach was easily demonstrated, the greater curvature, beginning in the right hypochondriac region, passed through the epigastric region, reaching its lowest point two inches above the umbilicus, and, ascending gradually, filled the median half of the left hypochondriac region. Peristalsis visible through the parietes; no enlarged glands in the inguinal or supra-clavicular regions; no tumor. Patient was extremely weak, as he had been living on nutrient enemata for sixteen days, only small quantities of water having been occasionally administered by the mouth. Even then vomiting occurred every forty-eight hours. Bowels were obstinately constipated.

Diagnosis.—Pyloric obstruction and great dilatation of the stomach. Under the careful administration of beef-juices and peptonized milk by the stomach, patient gained somewhat and was able to sit up in bed, but vomiting occurred whenever the stomach became full. Nevertheless, he rallied so that after two weeks I felt justified in ordering washing out of the stomach to be performed every other day. Finally, my assistant, Dr. Perkins, reported that the long-suspected tumor could be felt low down in the right hypochondrium. I then informed the patient of the necessity of operative interference

and urged a gastro-enterostomy. Under the washing-out treatment, however, he was improving wonderfully, and gained some twenty pounds during December, and returned to work in January. He would not entertain my proposition for the operation. The improvement was of short duration, and by the end of the month he was again in a state of great debility and emaciation, and, while lending a more willing ear to my proposal, insisted on trying the efficacy of the Hot Springs in Arkansas.

For a time he improved and sent glowing reports, but returned home March 25th almost dead. He now clamored for an operation. Rectal feeding and stimulants revived him somewhat, and on the 29th, at 9 A.M., with the patient in a miserable condition, after having washed out the stomach and bowels, I proceeded to operate, with the assistance of Drs. Carson, Brokaw, and the clinical staff.

Operation.—The incision, four inches in length, was made over the site of the tumor. The centre of the incision was two inches to the right of and on a level with the umbilicus and upon an imaginary line drawn from the centre of Poupart's ligament to the cartilage of the right ninth rib. The peritoneum was opened to the same extent, after having stopped all bleeding. I found the pylorus at once, presenting in the wound, without adhesions, freely movable, and about the size of a walnut. Considering the extremely weak condition of the patient, I had determined first to make the gastro-enterostomy, and, if the patient seemed able to bear it, then to resect the pylorus.

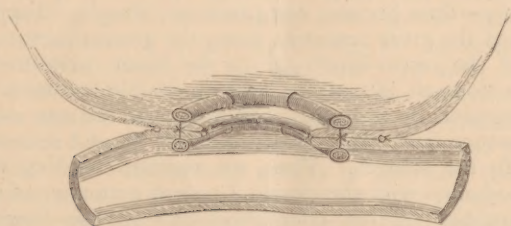
But a short time is required for a gastro-enterostomy with our improved technique. The introduction by Senn of decalcified bone apposition-plates marks an era in abdominal surgery. I have had the

privilege of seeing him use the plates in an experimental operation upon a dog. Like most great devices, it is exceedingly simple. But for the difficulty of procuring the plates, and of proper size, when needed, their use would become universal. This difficulty has, however, been completely overcome by Dr. Brokaw's ingenious substitute. The segmented rubber ring (see *THE MEDICAL NEWS*, December 7, 1889,) can be rapidly made and of any size, of a strand of catgut or a piece of rubber tubing. A ring composed of four or six segments is most readily applied, and, quoting Dr. Brokaw, is used as follows: "Compress the ring, pass it into the lumen of the bowel or stomach through the opening previously made, pass the threads at the end of the oval first, through the intestinal wall from within outward, then the lateral threads; make slight traction to ascertain whether the ring rests well in place, and proceed to the second. Apply this in the same manner, appose, and tie the apposition threads, after scarification of the marginal serous surfaces, as suggested by Senn."

I now drew the stomach out of the cavity, covered and surrounded it with warm sponges, found the beginning of the jejunum without difficulty, brought it forward until it was above the middle of the great curvature of the stomach, and emptied the contents from about three inches, and placed the clamps in position. I then made an incision an inch in length on the convex border, compressed a segmented ring two inches in diameter into a long ovoid, introduced it into the gut, and passed the needles armed with fine, strong silk thread. A correspond-

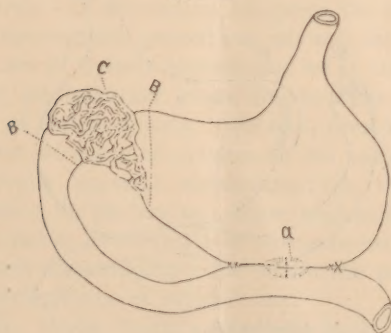
ing incision was then made in the stomach at the point indicated; a similar ring introduced, and

FIG. 1.



Longitudinal section through openings and Brokaw's rings in a gastro-enterostomy.

FIG. 2.



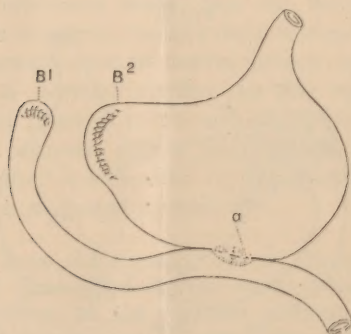
- A. Anastomosis complete.
- B B. Lines of excision.
- C. Malignant growth.

the needles passed close to the ring at its outer circumference. I then secured the openings in both stomach and gut by interrupted sutures, tied the

apposition threads, and completed the anastomosis by the addition of eight Lembert sutures surrounding the anastomosis.

The second step of the operation—the pylorectomy—then became comparatively simple. I separated the great omentum along the greater curvature and the gastro-hepatic along the lesser curvature of the stomach by cutting between double ligatures, as suggested by Billroth. I then applied clamps some distance from each side of the growth, and resected with the scissors. Then, an assistant holding the duodenum with the clamp, I passed a number of interrupted sutures, completely closing the bowel; then removed the clamp, invaginated the bowel,

FIG. 3.



A. Anastomosis.

B¹. Closed end of duodenum.

B². Closed pyloric end of stomach.

and secured broad peritoneal contact by interrupted Lembert sutures, closely applied. The stomach-wound was closed in the same manner.

Three enlarged glands were removed with the

omentum. The bleeding was slight. No stomach or bowel contents escaped into the cavity. After a careful toilet of the peritoneum I closed the parietal wound in the usual manner. Patient had a number of sinking spells, and whiskey and digitalis had to be administered frequently during the operation, which was completed in one hour and forty-five minutes. He seemed to react from the operation; there was no vomiting, and the intellect remained clear and calm. Pulse varied from 120 to 140 per minute. He complained greatly of pain and thirst during the day, the latter being relieved by warm-water enemata. During the night he constantly grew weaker, and died twenty-six hours after the operation. Microscopic examination proved the tumor to be epithelioma.

Remarks.—In attempting to gauge the merits of the various surgical procedures advised for the relief or cure of pyloric obstructions we at once meet with an all-important obstacle, viz., the limited number of reported cases. We find, therefore, not only great diversity of opinion on the subject, but diametrically opposed statements from the most illustrious in the profession. Some high authorities, who put before us the results of closest investigation, speak most discouragingly and doubt the propriety of the performance of pylorotomy.

In Mr. Greig Smith's classical work on *Abdominal Surgery*, page 392, we read:

"With these results before us, we must admit that if pylorotomy is to be considered anything more than a 'mere surgical exercise,' it is to be contemplated only in a very carefully selected class of cases. If the patient is not in fairly good condition, if the stomach is greatly dilated, if the growth is large, fixed and dis-

placed, the operation should not be contemplated. And even when the opposite conditions are present it is doubtful if it could ever be a surgeon's duty to advise the operation; he ought to undertake it only at the patient's urgent request, and after fully and honestly explaining to him the hazardous risk which he undergoes."

The inadequacy of the statistics on the subject may be readily appreciated by reading from the section on the surgery of the abdomen by Mears in the *Annual of the Universal Medical Sciences* for 1889, page 25.

Professor Buchanan, with regard to the propriety of performing the operation in carcinoma, quotes the opinions of Butlin, and of Billroth, as given by his assistant Salzer. The former says:

"The excessive mortality due to the operation, the rapidity of recurrence in what have appeared to be most favorable cases for operation, the return of the symptoms of obstruction in some, if not in many, of the cases, and the fact that there does not appear to be one case which can be claimed as a genuine cure, lead me to doubt whether the operation of resection of the pylorus for cancer is ever a justifiable operation."

Salzer states that

"Billroth does not only consider the operation of resection of the stomach a justifiable one, but he continues operating with good results in many cases. Of course, he does not operate in cases of carcinoma if there are already infiltrations and adhesions to the liver and pancreas. In these cases he prefers Woelfler's operation of gastro-enterostomy."

Mikulicz, of Cracow, collected thirty-two cases, of which only eight recovered from the effects of the operation.

The unfavorable results which have so far attended this operation may probably be attributed to the

following causes, of which some may be classed as unavoidable, others as avoidable. First, and most important, the mutilation of an organ of such paramount importance; and secondly, the injury of greater or less extent inflicted on the sympathetic nervous ganglia. The former might cause a marantic condition later on; the latter, severe and fatal shock. Future statistics will determine the importance of these factors. Among other prominent causes are the long duration of the operation, lasting, in the hands of even the masters of the technique, three hours or more; imperfect sewing; an extensive separation of the omentum, producing gangrene of the colon; the numerous causes of sepsis, such as the escape of stomach- or bowel-contents into the peritoneal cavity. It is unnecessary to say, that the careful selection of cases is, *ceteris paribus*, of prime importance. The patient upon whom I operated presented locally the most desirable, constitutionally the most undesirable condition. At last, almost *in extremis*, pleading for the operation, I performed one which I claim has some decided advantages over those heretofore in vogue. The first step, the gastro-enterostomy, made in the manner described, probably does away with two important factors of failure, for it requires but little time, and fairly guarantees complete apposition and closure. In the future, with a very weak patient, I would defer the pylorotomy for two or three weeks. With the patient in an improved condition, this form of pylorotomy would appear less hazardous. Whenever a pylorotomy is indicated, gastro-enterostomy, followed by the resection of the pylorus, as described,

appears the shorter, the more complete, the more secure, so far as closure is concerned, hence the better operation. When done for carcinoma, even if there is recurrence, obstruction, which causes the most disturbing symptom, would be prevented. But carcinoma of the pylorus, although the most frequent, is not the only cause of obstruction; simple stricture, external adhesions, and the pressure of a tumor may produce similar symptoms. An early and exact diagnosis, therefore, is of vast importance. I believe that just as soon as dilatation of the stomach, due to obstruction at the pylorus, has been diagnosed, it is eminently proper, with the consent of the patient, to make an exploratory laparotomy, and to examine the pylorus; if the cause of the obstruction be found in adhesions which can be severed, to sever them; or, if that be not feasible, to make a gastro-enterostomy with the apposition rings.

If due to a tumor which cannot be removed the same should be done. If the disease is confined to the pylorus, it is proper to open the stomach at a place convenient for a gastro-enterostomy, to introduce the finger through the opening and into the pylorus. If a simple stricture is found we should proceed according to Loreta, dilate, and close the opening in the stomach. If the obstruction is due to carcinoma, the opening should be used for a gastro-enterostomy, and the pylorus resected as suggested.

I hazard the opinion that operations for obstruction at the pylorus will yield better results in the future. We will operate upon patients in fairly

good conditions and we will find large pyloric carcinomata with extensive adhesions as rarely as we now find very large stones in the bladder or huge ovarian tumors—such condition being diagnosed early and removed.

In conclusion I would mention, that after a number of experiments upon dogs, Dr. Brokaw, of St. Louis, found the segmented rubber ring of great value in circular pylorotomy. After resection, a segmented rubber ring is introduced into the cut extremity of the duodenum, the apposition threads passed through the intestinal walls one-half to three-fourths of an inch from the free edge. The stomach is then sutured, beginning at the lesser curvature, reducing the opening until it exactly corresponds to the diameter of the duodenum. Through the opening in the stomach a segmented rubber ring is now introduced, the needles are passed and the operation finished as in any other anastomosis. I believe that this method may find its uses in non-malignant obstructive strictures of the pylorus. For the carcinomatous obstruction, I think the operation which I have devised is preferable.¹

¹ Since writing the above I have read with pleasure that the same operation has been performed successfully by the eminent surgeon, Dr. Bull, of New York, on April 10th.

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